



River Nile, History, Present and Future Prosperity

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River Nile

Hydrology, Ecology and Geophysiology



River Nile Basin

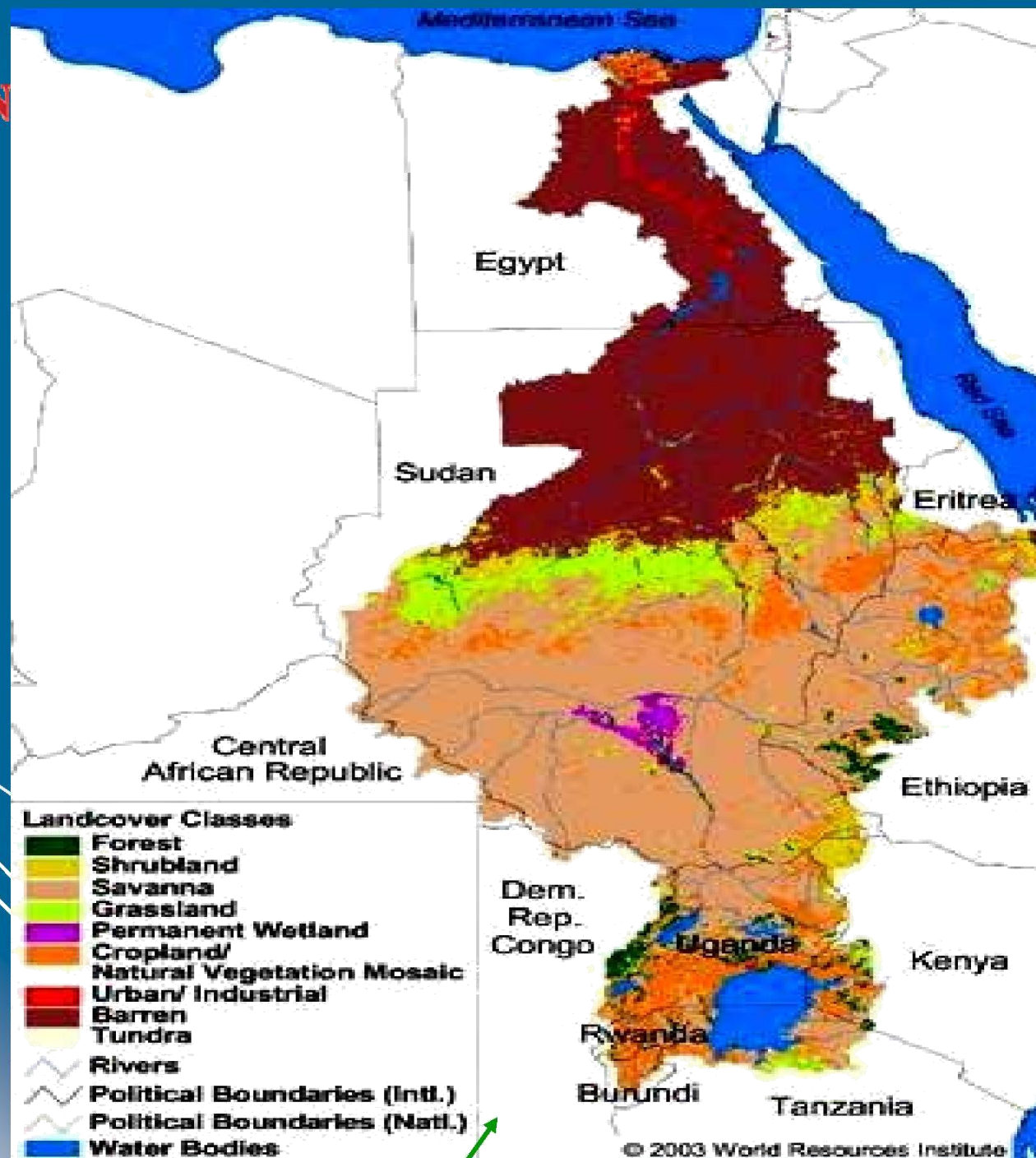
Š **Longest** river in the World (6,695 Km)
Š **Location:** Africa latitude 4° S to 31° N

Š **Total length of the river and its tributaries:** 37,205 Km
Š **River catchment's area:** 2,9 million Km²

Š **Shared among ten countries:** Burundi, Democratic Republic of Congo, Egypt, Ethiopia, Eritrea, Kenya, Rwanda, Sudan, Tanzania and Uganda

Š **Total population** of these countries: about 280 million
Š **Crosses several climatic regions** of

pical rain



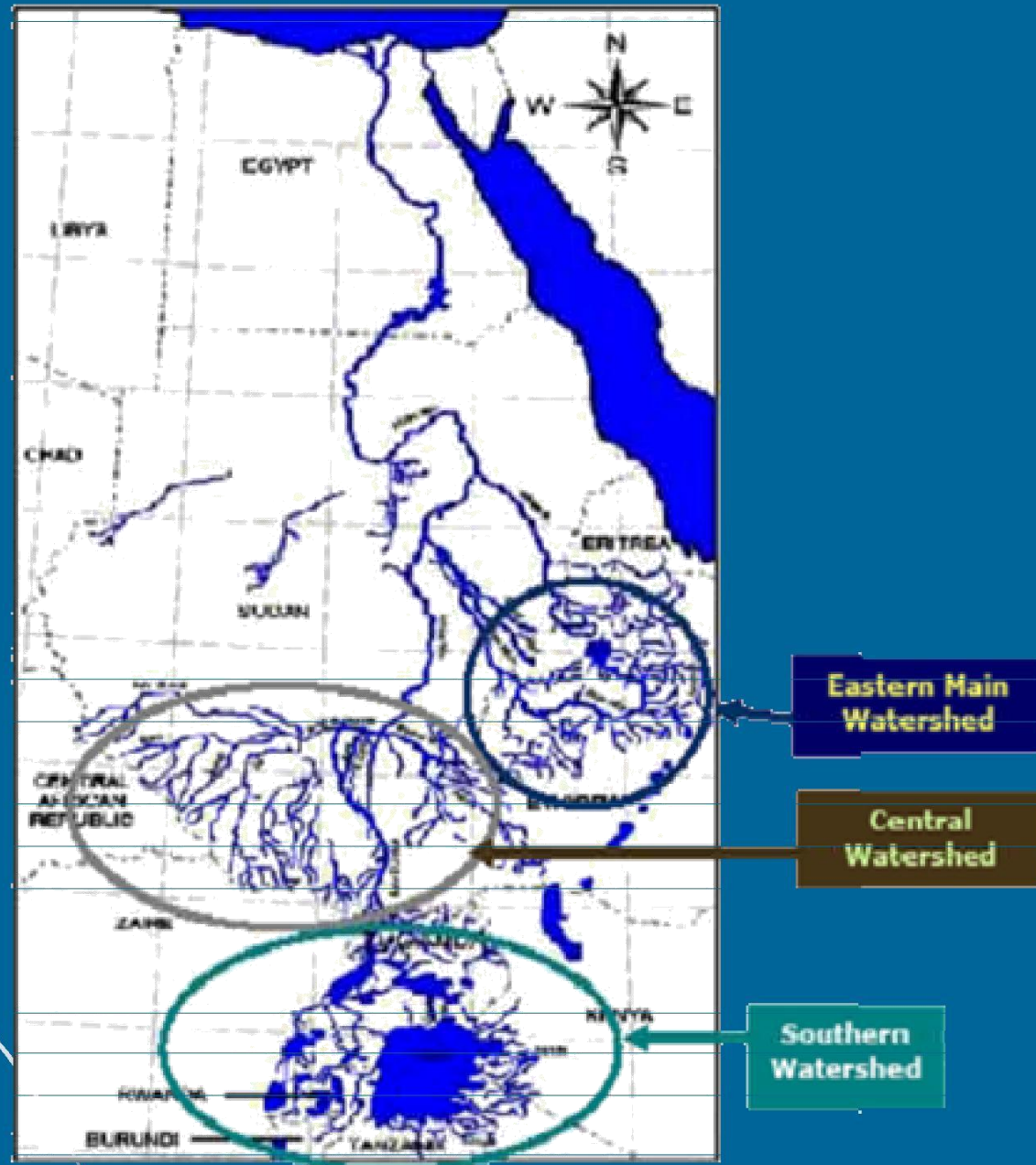


NILE RIVER Watersheds

Watershed area : 3.3 million km² (one tenthth of Africa)

The Nile River gets its water from threethree catchments :

- 1- The Plateau of Equatorial lakes (South)
- 2- Bahr EL Ghazal (Center)
- 3- Ethiopian high lands (East)



Main Watersheds of Nile River Basin



Water Sources of River Nile

ŠThe Nile is a combination of three long rivers whose sources are in central Africa: the **White Nile**, the **Blue Nile**, and the **Atbarah**.

ŠThe **White Nile**, which begins at **Lake Victoria** in **Uganda**, supplies about **28%** of the Nile's waters in Egypt

ŠIn southern and central Sudan, the White Nile passes through a wide, flat plain covered with **swamp vegetation** and slows almost to **stagnation**.

- ŠThe **Blue Nile**, which originates at **Lake Tana** in **Ethiopia**, provides an average of **58%** of the Nile's waters in Egypt.

- ŠThe much shorter **Atbarah** River, which also originates in Ethiopia, and provides about **14%** of the Nile's waters in Egypt.

1 DRAGON

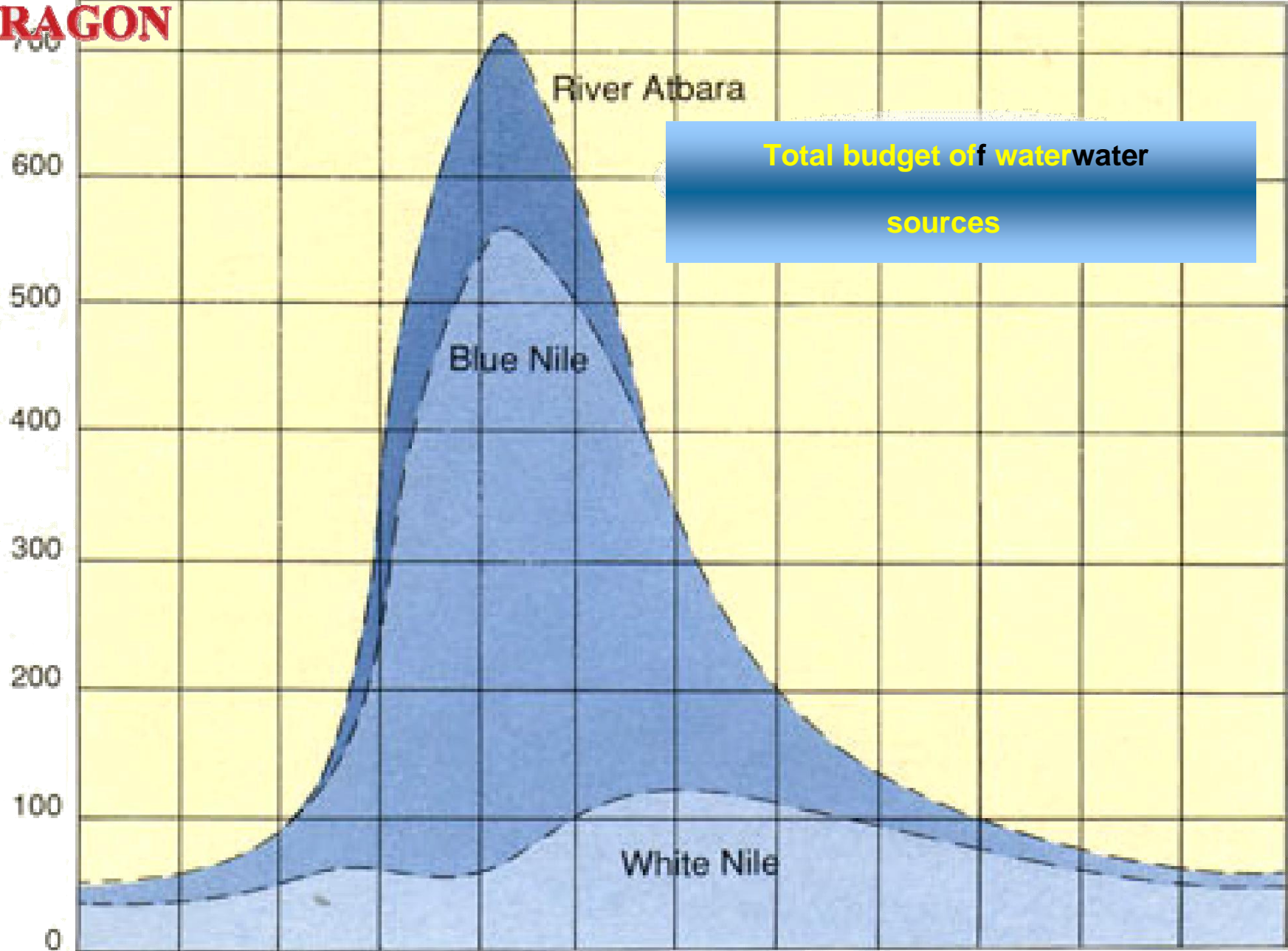




DRAGON

flow in millions of cubic metres per day

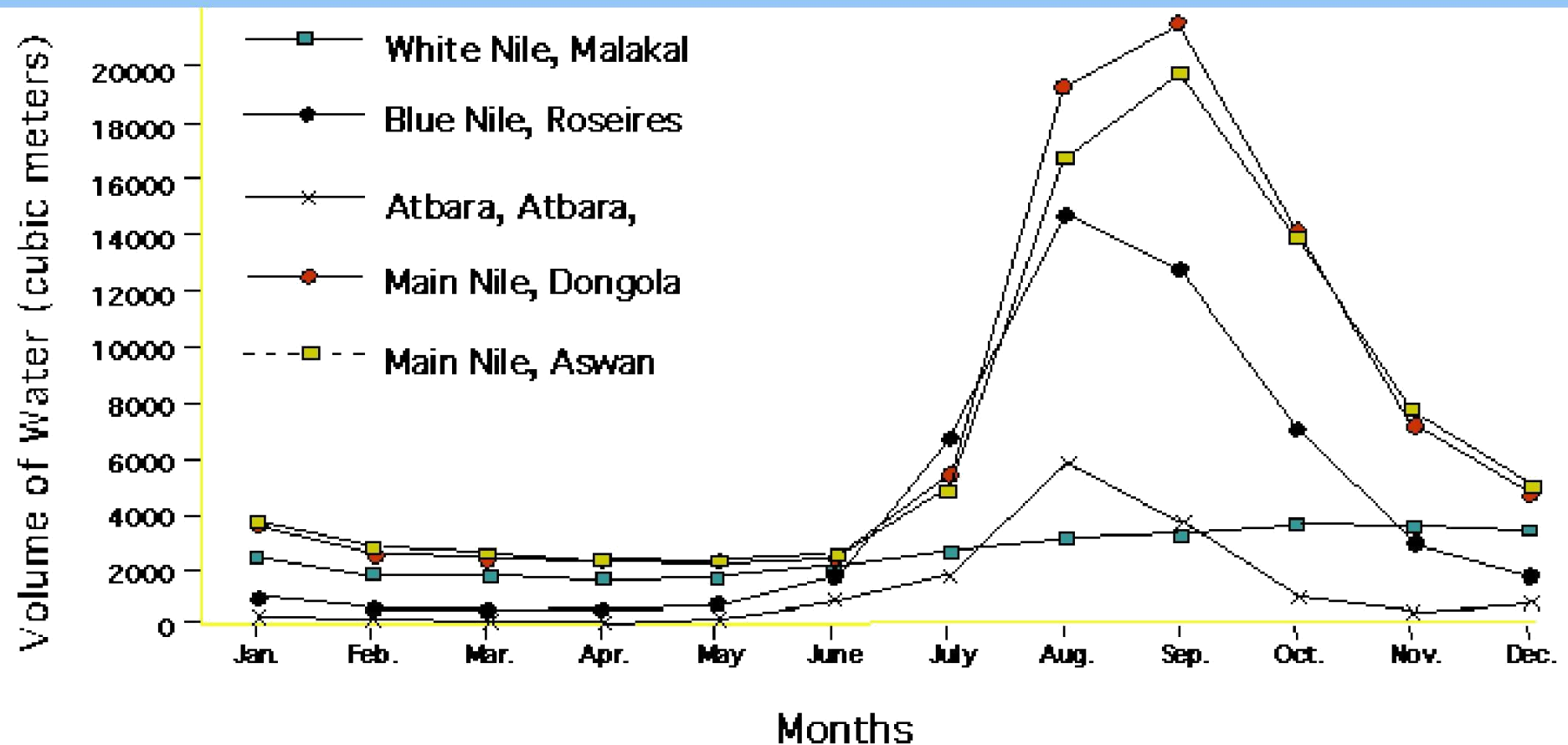
May June July Aug Sept Oct Nov Dec Jan Feb Mar Apr



Total budget of water sources



Water flow to River Nile (Egypt) ($\times 10^6$)



Egypt's share of the Nile flow is 55.5 cubic kilometres perper year (average flow is 84 cubic kilometres per yearear atat Aswan)



Delta Branches

Š The Nile Delta extends over approximately 22,000 square kilometers.

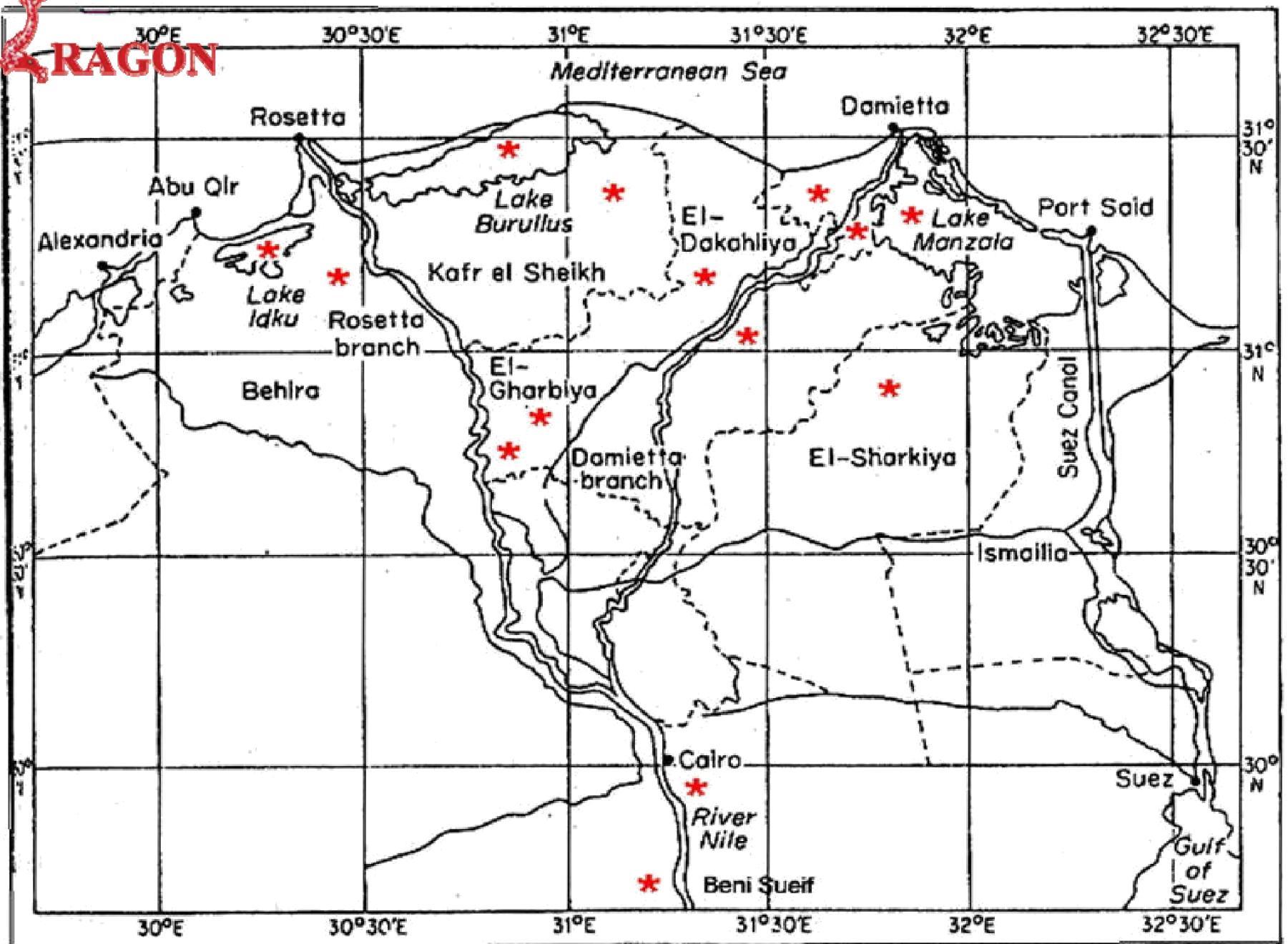
Š The Nile in Egypt extends for 1200 km between **Aswan** and the Mediterranean Sea .

Š At Cairo, the Nile spreads out over what was once a broad **estuary** that has been filled by silt deposits to form a fertile, fan-shape **delta** about 250 kilometers wide..

Š According to historical accounts from the first century A.D., seven branches of the Nile once ran through the Delta.

Š Nature and man have closed all but two main outlets: the east branch, **Damietta** (240 kilometers long), and the west branch, **Rosetta** (31.50°N, 30.35°E) (235 kilometers long).

Š A network of **drainage** and **irrigation canals** supplements these remaining outlets.





Nile Valley Geology

Š The **Nile Delta** has strong geological similarities with the desert to the west and the Nile Valley to the south..

Š The **Nile Valley** consists of the broad floodplain which flows between steep **limestone** or **sandstone hills**..

Š The valley **sediments** have been formed by the deposition of over bank deposits (**sands, silts, and clays**) when the Nile flooded. Silt is **50 to 75** feet deep.

- Š Much of the delta is dominated by **similar alluvial** sediments to those found in the Nile Valley.

Š River regulation has stopped this annual **sediment** influx, and the flood plain is now dissected by a **network** of irrigation canals.

Š

salt

saline lagoons

and



Population: 3 800 000

Cropland (Km²): 1 800





Sources of Nile Sediment

Š Most of the sedimentation of the Nile (~ 90%), flows from the **Ethiopian highlands** through the **Blue Nile** and the **Atbara** during the flood .

Š The **White Nile** and its tributaries lose most of its sediment load by spilling and deposition over flood plains, lakes, and marshlands.

• Š Mean annual sediment load to be approximately **134 million tons** at Aswan.

Š North of Aswan, the river has a gentle gradient, dropping **1m in every 13 km**.

